In every respect the most interesting and valuable part of the work are the concluding chapters of vol. ii., in which all the fresh geographical materials are conveniently summed up, the land revenue system of Persia dealt with probably for the first time in a really satisfactory manner, and the present condition of the country made the subject of some opportune remarks. It is pleasant to learn that this venerable monarchy, so far from being "played out," is even beginning to show signs of renewed vitality. The famine-stricken districts are gradually recovering, the peculiar underground system of irrigation is being largely extended, brigandage has been almost everywhere suppressed, the governors are beginning to show some regard for the interests of the people, while many will perhaps be surprised to hear that the people themselves are, on the whole, more comfortable, better clad, and better fed than the Indian rayats. There is, of course, "much to be done in the way of governing and reducing things to order;" but notwithstanding much maladministration and many local grievances, "the progress made by Persia within the last ten years is unmistakable."

The work is supplied with a series of excellent sectional maps of the regions traversed by the explorer. But there is neither index nor a table of contents beyond the briefest chapter-headings. The stages, however, along the routes are in all cases carefully recorded, with their distances and time occupied in covering the ground.

A. H. KEANE

Notes on Chemical Calculations, with Examples, for use in the Leys School. By A. Vinter, M.A. (Batley: J. S. Newsome, 1882.)

THE selection of calculations contained in this little book, while exhibiting nothing new, is satisfactory; the notes, in so far as they are explanatory of the calculations, are clear, and to the point, but when they deal with such subjects as atoms, molecular weights, and equivalency, they become sadly confused; on these points they must, we are afraid, be very misleading to the boys who make use of this book in the Leys school.

A Pocket Guide to British Ferns. By Marian S. Ridley. (London: Bogue, 1881.)

MISS RIDLEY'S book merits its title; for it is of a most convenient size for the pocket. Whether a new book on British ferns was needed may fairly be doubted; but this little volume will be useful to many beginners. The characters of each fern are given in tabular form, each occupying a page; and the principal points of distinction are clearly brought out.

LETTERS TO THE EDITOR

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts. No notice is taken of anonymous communications.

[The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to ensure the appearance even of communications containing interesting and novel facts.]

A Meteorological Spectroscope

AS a considerable amount of interest seems to have been awakened lately in meteorological spectroscopy, it may be of service to observers to call their attention to a form of pocket spectroscope specially adapted for this purpose which Mr. Adam Hilger, of 192, Tottenham Court Road, prepared for me some months ago. The compound triple prism of flint glass is mounted as nearly as possible at the minimum angle of deviation for "C." We thus obtain a much better view of the red end of the spectrum than with the ordinary pocket-spectroscope. Mr. Hilger has also managed to secure an increased dispersion, which, with very perfect definition, enables me to see the lines in the so-called "rain-band" at "D" with great ease.

Besides the ordinary achromatic object-glass between the adjustible slit and the prisms, the spectroscope is fitted with a telescope, *i.e.* a sliding tube carrying a lens, or second object-glass, in front of the slit—proposed by Mr. Lockyer—to bring the light from external objects to a focus on it. By this means one is able to differentiate, or localise, the spectra of different parts of the sky. I feel sure that the use of the telescope would prevent people falling into some of the mistakes one sees in publications about rain-band spectroscopy.

September 14 J. F. D. DONNELLY

The New Comet

ON Sunday morning, the 17th inst., at 10.45 a.m., I found a bright comet near the sun. The nucleus was bright, stellar in appearance; the tail was about 4′ long, and brightest at the outside edges, giving a double appearance. The direction of the comet was to the centre of the sun. The comet preceded the sun's centre at 10.59 by 6m. 50s., at 12h. 0m. by 5m. 44s. The distance from the sun's limb on the parallel was at 11h. 10m, 18′ 8″ (of arc), and at 12h. 6m., 13′ 4″.

I hoped to get more and better measures, but the sky overcast, and with the exception of a short time on Monday morning, when I looked but did not see, the comet has remained so.

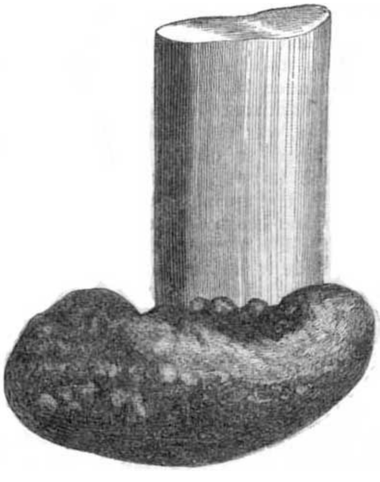
I used a helioscope of six inches' aperture.

Ealing, September 19 A. A. COMMON

Contact Makers of Delicate Action

I HAVE allowed an error to creep into the sectional elevation of the contact-maker described in your last issue. The bent wire merely *dips* into the capsule at D, and is separate from the wire, which passes up the tube. This latter wire merely forms part of the circuit, being connected with the terminal as shown in the plan. It should be noted that the plug K is only inserted when the contact-maker is being moved about. Except when this is the case, the mercury passes freely through the opening at M, and nothing but the *friction of mercury* resists the motion of the wire.

Some remarks made in the discussion on the paper have led me to carefully examine the end of the platinum wire dipping into the mercury at D. It is shown (highly magnified) in the annexed figure. This end being softened, and no doubt brought to a welding state by the heat, of which the spark is the visible evidence, has, in rapidly beating upon the mercury, been apparently hammered into this shape. The nodules upon it are probably those referred to in books on chemistry as due to the expulsion of occluded hydrogen. The result shown in the figure, produced with a strong current (15 Groves cells) and a small wire, could in practice be easily prevented.



End of Platinum Wire.

H. S. HELE SHAW

University College, Bristol, September 15

Bobbers

IN his well-known account of the habits of the Pearly Nautilus, Rumphius (D'Amboinsche Rariteitkamer, door G. E. Rum-

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phius, Amsterdam, 1705, p. 61) states that the animal crawls sometimes into the hoop nets set for fish or "bobbers." For a long time I have been unable to discover the meaning of the word "bobbers." It occurs in no Dutch dictionary. I inquired from several Dutch friends without success, and an appeal to *Notes and Queries* was similarly without result. On visiting Leiden this summer I asked again about the word, and my friend, Prof. Serrurier, promised to find out about it for me. He now writes that "bobber" is a Dutch mutilation of the Malay word *boeboe*, meaning a hoop-net, so that Rumphius merely adds the Malay term for the hoop-net to his statement, and does not mention some other kind of trap besides this, in which nautilus is to be caught as I had expected. This matter may seem scarcely worth troubling the readers of NATURE with, but Nautilus is so important a form, so little is known about its habits, and naturalists so eagerly look forward to the day when it shall be caught somewhere in numbers, and its developmental history worked out, that every statement as to possible modes of trapping it is of importance. It is just possible that suitably baited lobster pots or hoop-nets, used in depths of 100 fathoms or thereabouts, might be found efficacious.

H. N. MOSELEY

PROFESSOR HAECKEL IN CEYLON[1]

V.

THE long account of his six week's stay in Belligam (or Bella Gemma, "schöner Edelstein" as, in defiance of etymology he delights to call it) contributed by Professor Haeckel to the September number of the *Deutsche Rundschau* will be disappointing only to those who imagine that the theoretical and scientific results of such a visit can be analysed, combined and presented to the public within the compass of an article and in a sufficiently popular form to interest the readers of a magazine devoted to general literature.

All, whether scientific or not, will find interest in the graphic and spirited account of Belligam, its Rest-House, its inhabitants, and the surrounding nature, animate and inanimate, which is here presented to us. The Rest-House keeper with an unpronounceable Singhalese name Prof. Haeckel christened "Socrates," from his striking resemblance to the bust of that great philosopher, heightened by the sententious maxims with which he flavoured his somewhat long-winded discourses. The Professor's devoted attendant, a handsome Rodiya boy, whose Singhalese name, Gama-Meda, was classicised by him into "Ganymede," is described in detail with an affection that rises into poetical fervour. The picture presented by this poor outcast, the springs of whose heart were first opened by the kind-hearted foreigner whom it became the delight of his life to serve, is charming. "Who so happy as Ganymede when summoned for an expedition to the woods or the shore for painting and collecting, hunting and shooting? When, on such occasions, I allowed him to carry the paint-box or the photographic camera, or to sling the gun or the botanical case over his shoulder, he would stride after me, his face aglow with delight, looking proudly around on the wondering villagers, to whom such favour shown to a Rodiya was utterly incomprehensible.

"To Ganymede's unwearied skill and zeal I owe the most highly prized objects of my collection. With the sharp eye, the cunning hand, and the flexible agility of all Singhalese youths, he could catch the fish as it swam, the butterfly as it flew, and would bound into the thickest jungle, or climb the loftiest trees like a cat, in search of the prey that had fallen to my gun."

Another pleasant figure, standing out sharp and clear among Professor Haeckel's memories of Belligam, is that of the second chief, or headman of the village, the Arachy Abayawira. His superior character and acquirements were known to the government agent of the southern province, who had given the Professor a special introduction to him.

"I found the Arachy," he says, "an unusually intelligent and enlightened man, of about forty years of age, with a circle of interests and an amount of knowledge far beyond those of his fellow-countrymen in general. The prevailing stupidity, laziness, and indifference of the Singhalese gave place in him to a lively interest in education, and a genuine wish to extend its advantages to all within the range of his influence. He spoke English fairly well, and expressed himself with a natural good sense, and a clearness of judgment which often surprised me.

"Indeed, the Arachy might claim the title of a philosopher, in a higher sense than that of old Socrates at the Rest House, and I recall with lively pleasure our many and earnest conversations on subjects the most varied and comprehensive. He was free from the superstition and fear of evil spirits which universally prevail among his Buddhist fellow-countrymen, and with open eyes for the wonders of Nature and their explanation by natural laws; he had worked his own way to the position of a free-thinker, prepared to receive with delight the explanations of many of the riddles of Nature which my better knowledge enabled me to give him. I seem to see him still, a fine, dignified, bronze-coloured figure, with regular expressive features, and an eye that lighted up with intelligence as I instructed him on some of the phenomena of Nature; and I seem still to hear his gentle, vibrating voice, as he modestly and respectfully asked my explanation of this or that problem which had puzzled him. The highest and most amiable qualities of the Singhalese national character, a gentle and impressionable temper, and a natural intelligence were developed in the Arachy in the most attractive degree; and when, looking back, I seek to repeople my verdant Paradise with the slender bronze figures of its inhabitants, the images of the Arachy and Ganymede rise before me as their ideal types."

The section of his article headed by the Professor "A Zoological Laboratory in Ceylon," will be read by his fellow collectors, and, indeed, by all who appreciate perseverance in spite of obstacles, and entire devotion to a scientific object, with feelings of lively sympathy mingled with admiration. The difficulties arising from want of furniture and appliances, from the absence of all skilled assistance, from destructive insects, and above all, from the climate of Ceylon, were such as would have daunted any less ardent believer in the cause for which he laboured. We wish that we had space to extract at length for the benefit of youthful experimenters the Professor's account of his improvised tables, cabinets, and shelves, and of the semi-despairing resignation with which, after a long day's collecting, he would empty the contents of his jars and glasses to find nine-tenths of his treasures dead before their time from the heat and moisture of the air, and useless as specimens. Another infliction which he seems to have borne with admirable patience consisted in the intrusive curiosity of the natives, who crowded uninvited into his work-room, or thronged round him on his return from a fishing expedition, often causing him to lose the precious minutes which would have saved some of his half dead specimens. The Arachy's explanation that all the white sand and queer little fishes contained in the glasses and jars were to be used to increase knowledge in the world was received with derision by the villagers, the more simple of whom believed that the stranger was inventing a new dish of curry, while the wise-heads looked upon him as a European madman. The want of glass windows was another serious drawback to the preservation of the collection when once safely housed. The green wooden jalousies, which are universal in Ceylon, kept the room too dark for work with the microscope, while admitting an amount of wind and dust (not to mention the more serious incursion of hosts of insects) very detrimental to the specimens and instruments. All these hindrances and others notwithstanding, Prof. Haeckel

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[1] Continued from p. 300.

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